

were inundated to depths of from one to fifteen feet for a distance of six miles. Many residents were driven to the upper stories of their dwellings. It is estimated that the losses will amount to \$100,000.

**HIGH TIDE.**

Eastport, Maine, 4th, 5th.

**LOW TIDE.**

New Haven, Connecticut, 11th.

**TEMPERATURE OF WATER.**

The following table shows the highest and lowest temperatures of water observed at the several stations; the monthly ranges of water temperature; and the mean temperature of the air:

*Temperature of water for March, 1885.*

Station.	Temperature at bottom.		Range.	Average depth, feet and tenths.	Mean temperature of the air at station.
	Max.	Min.			
Atlantic City, New Jersey .....	44.5	29.8	14.7	3 6	31.4
Alpena, Michigan* .....	56.4	41.0	15.4	8 9	49.5
Augusta, Georgia .....	38.5	33.7	4.8	10 0	35.3
Baltimore, Maryland .....	37.0	49.2	7.8	6 9	29.8
Block Island, Rhode Island .....	33.2	29.2	4.0	21 4	27.9
Boston, Massachusetts .....	53.8	44.9	8.9	15 8	49.5
Buffalo, New York* .....	57.5	59.8	7.7	9 3	58.7
Canby, Fort, Washington Territory .....	53.3	49.7	3.6	40 9	52.2
Cedar Keys, Florida .....	40.6	21.0	19.6	3 4	35.7
Charleston, South Carolina .....					
Chicago, Illinois* .....					
Chincoteague, Virginia † .....					
Cleveland, Ohio* .....					
Detroit, Michigan* .....					
Duluth, Minnesota* .....					
Eastport, Maine .....	34.2	32.2	2.0	15 7	22.8
Escanaba, Michigan* .....					
Galveston, Texas .....	64.7	54.2	10.5	12 7	60.7
Grand Haven, Michigan* .....					
Indianola, Texas .....	66.9	54.6	12.3	8 3	60.3
Jacksonville, Florida .....	64.6	57.0	7.6	18 0	57.6
Key West, Florida .....	83.0	69.4	13.6	17 2	70.8
Mackinaw City, Michigan* .....					
Macon, Fort, North Carolina .....	55.3	42.8	12.5	5 1	45.3
Marquette, Michigan* .....					
Milwaukee, Wisconsin* .....					
Mobile, Alabama .....	58.5	49.0	9.5	16 7	53.5
New Haven, Connecticut † .....	38.4	30.0	8.4	16 0	26.9
New London, Connecticut .....	35.8	33.2	2.6	11 0	29.7
New York City .....	35.8	31.2	4.6	14 0	29.7
Norfolk, Virginia .....	45.9	35.0	10.9	10 4	40.8
Pensacola, Florida .....	59.7	50.0	9.7	17 1	51.8
Portland, Maine .....	33.3	30.1	3.2	16 7	27.4
Portland, Oregon .....	52.5	43.3	9.2	50 3	52.0
Sandusky, Ohio* .....					
Sandy Hook, New Jersey .....	39.1	32.9	6.2	1 8	30.5
San Francisco, California .....	56.9	54.8	2.1	36 6	56.0
Savannah, Georgia .....	57.3	49.0	8.3	9 1	54.3
Smithville, North Carolina .....	57.2	43.6	13.6	11 0	45.8
Toledo, Ohio* .....					
Wilmington, North Carolina .....	51.3	43.8	7.5	14 5	49.3

\* No observations made on account of ice. † Record for 23 days. ‡ Record for 23 days.

**VERIFICATIONS.****INDICATIONS.**

The detailed comparison of the tri-daily indications for March, 1885, with the telegraphic reports for the succeeding twenty-four hours, shows the general average percentage of verifications to be 85.87 per cent. The percentages for the four elements are: Weather, 90.00; direction of the wind, 81.68; temperature, 83.28; barometer, 90.09 per cent. By geographical districts, they are: For New England, 86.24; middle Atlantic states, 88.78; south Atlantic states, 88.50; eastern Gulf states, 87.34; western Gulf states, 86.73; lower lake region, 86.83; upper lake region, 83.98; Ohio valley and Tennessee, 86.05; upper Mississippi valley, 83.97; Missouri valley, 78.46; north Pacific coast region, 80.36; middle Pacific coast region, 97.32; south Pacific coast region, 99.11. There were sixteen omissions to predict out of 3,384, or 0.47 per cent. Of the 3,369 predictions that have been made, forty-seven, or 1.40 per cent., are considered to have entirely failed; one hundred and twenty-four, or 3.68 per cent., were one-fourth verified; three hundred and sixty-four, or 10.80 per cent., were one-half verified; six hundred and sixteen, or 18.28

per cent., were three-fourths verified; 2,218, or 65.84 per cent., were fully verified, so far as can be ascertained from the tri-daily reports.

**CAUTIONARY SIGNALS.**

During March, 1885, two hundred and sixty-eight cautionary signals were ordered. Of these, two hundred and thirty-four, or 87.31 per cent., were justified by winds of twenty-five miles or more per hour at or within one hundred miles of the station. One hundred and fifty-six cautionary off-shore signals were ordered, of which number one hundred and twenty-two, or 78.21 per cent., were fully justified both as to direction and velocity; one hundred and forty-seven, or 94.22 per cent., were justified as to direction; and one hundred and twenty-eight, or 82.05 per cent., were justified as to velocity. Four hundred and twenty-four signals of all kinds were ordered, three hundred and fifty-six, or 83.96 per cent., being fully justified. These do not include signals ordered at display stations where the velocity of the wind is only estimated. Of the above cautionary off-shore signals, one hundred and fifteen were changed from cautionary signals. In forty cases winds of twenty-five miles or more per hour were reported for which no signals were ordered.

**COLD-WAVE SIGNALS.**

During March, 1885, there were eighty cold-wave signals ordered, of which number, seventy, or 87.5 per cent., were justified.

**RAILWAY WEATHER SIGNALS.**

The following is from the report of the "Alabama Weather Service," under direction of Prof. P. H. Mell, jr.:

The predictions for the month of March, telegraphed by General Hazen, the Chief Signal Officer, were as follows:

*Local rains.*—4th, 12th, 13th, 15th, 21st, 22d, 25th, 26th, 27th, 28th.

*Fair weather.*—1st, 2d, 3d, 5th, 6th, 7th, 8th, 9th, 10th, 11th, 14th, 16th, 17th, 18th, 19th, 20th, 23d, 24th, 29th, 30th, 31st.

*Lower temperature.*—13th, 17th, 20th, 22d, 28th, 29th.

*Higher temperature.*—3d, 4th, 6th, 10th, 11th, 12th, 14th, 15th, 16th, 18th, 19th, 21st, 23d, 24th, 27th, 30th, 31st.

*Stationary temperature.*—1st, 2d, 5th, 7th, 8th, 9th, 25th, 26th.

Cold-wave signals ordered on the 28th.

A careful examination of all reports shows the verification of predictions to be 92 per cent. for temperature and 93 per cent. for weather.

**ATMOSPHERIC ELECTRICITY.****AUROBAS.**

An extended display of the aurora occurred during the night of the 15-16th. Except at stations in Montana, where cloudiness prevailed, this display was observed throughout the northern part of the United States. To the eastward of the Missouri valley stations reporting it are very numerous, Nashville, Tennessee, being the southernmost point at which it was observed. In the northern plateau and north Pacific coast region this display was also reported by numerous observers.

The following reports have been received:

Spokane Falls, Washington Territory, 15th: a bright aurora appeared at 11.10 p. m.; there were three streamers of light pink color, which rose and fell at short intervals; the streamers were not vertical but were inclined towards the west.

Port Angeles, Washington Territory, 15th: an aurora was observed at 1.45 a. m., also at the 7 a. m. and at the 11 p. m. observations, with indications of its having continued uninterruptedly from the time of the first observation. When first seen no dark segment was observed, the horizon being obscured by groups of cirrus cloud, but an arch of light extended over about 150° of the northern horizon, with an elevation of about 40°; above the arch there appeared innumerable "merry dancers," which shot up to an elevation of about 70°. The maximum degree of brilliancy during the display was attained about 2.30 a. m. At the 7 a. m. observation the aurora was observed in the form of an arch of light, which flashed up in broad patches; at 11 p. m. the aurora was again observed, but was soon obscured by fog.

Lewiston, Idaho, 15th: an aurora was observed from 8.20 to 9.30 p. m.; it extended from 45° east of north to 15° west of